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Projective symmetries and laws of conservation in the K-spaces determined by gravitational fields

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Abstract

The symmetries of equations of motion for probe bodies (projective symmetries) and the corresponding laws of conservation in the K-spaces determined by the gravitational fields of type (3) are studied. The results define all mechanical and field laws of conservation in the foregoing gravitational fields resulting from projective symmetries, in particular, from isometries and homotheties. The metric ansatzes found can be used for construction of new exact solutions to the Einstein equations and for examination of their large-scale (geodesic) structure.

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